



GRADE

4

# KENTUCKY

K-PREP

Kentucky Performance Rating For Educational Progress



## MATH SAMPLE ITEMS

Spring 2012

The following are the general guides that will be used to evaluate your responses to short-answer and extended-response questions in this test.

## Kentucky Short-Answer Questions General Scoring Guide

### Score Point 2

- You complete all components of the question and communicate ideas clearly.
- You demonstrate an understanding of the concepts and/or processes.
- You provide a correct answer using an accurate explanation as support.

### Score Point 1

- You provide a partially correct answer to the question and/or address only a portion of the question.
- You demonstrate a partial understanding of the concepts and/or processes.

### Score Point 0

- Your answer is totally incorrect or irrelevant.

### Blank

- You did not give any answer at all.

# Kentucky Extended-Response Questions

## General Scoring Guide

### Score Point 4

- You complete all important components of the question and communicate ideas clearly.
- You demonstrate in-depth understanding of the relevant concepts and/or processes.
- Where appropriate, you choose more efficient and/or sophisticated processes.
- Where appropriate, you offer insightful interpretations or extensions (generalizations, applications, analogies).

### Score Point 3

- You complete most important components of the question and communicate clearly.
- You demonstrate an understanding of major concepts even though you overlook or misunderstand some less-important ideas or details.

### Score Point 2

- You complete some important components of the question and communicate those components clearly.
- You demonstrate that there are gaps in your conceptual understanding.

### Score Point 1

- You show minimal understanding of the question.
- You address only a small portion of the question.

### Score Point 0

- Your answer is totally incorrect or irrelevant.

### Blank

- You did not give any answer at all.



1

The speed of light is about 186,282 miles per second. What is the expanded form of 186,282?

- A**  $100,000 + 80,000 + 6,000 + 200 + 80 + 2$
- B**  $100,000 + 80,000 + 6,000 + 2,000 + 80 + 2$
- C**  $100,000 + 8,000 + 600 + 200 + 80 + 2$
- D**  $100,000 + 8,000 + 6,000 + 200 + 80 + 2$

2

Coach Barrett bought 8 boxes of golf balls. Each box contains 6 golf balls. He wants to give each of the 5 team members as many golf balls as possible and keep the rest. Based on this information, which statement is correct?

- A** Each team member gets 6 golf balls, and Coach Barrett keeps 6 golf balls.
- B** Each team member gets 8 golf balls, and Coach Barrett keeps 2 golf balls.
- C** Each team member gets 9 golf balls, and Coach Barrett keeps 3 golf balls.
- D** Each team member gets 9 golf balls, and Coach Barrett keeps 5 golf balls.

3

Ryan cut a rectangular picture from a newspaper. The picture is 4 inches long. The area of the picture is 12 square inches. What is the perimeter of the picture?

- A** 7 inches
- B** 10 inches
- C** 12 inches
- D** 14 inches



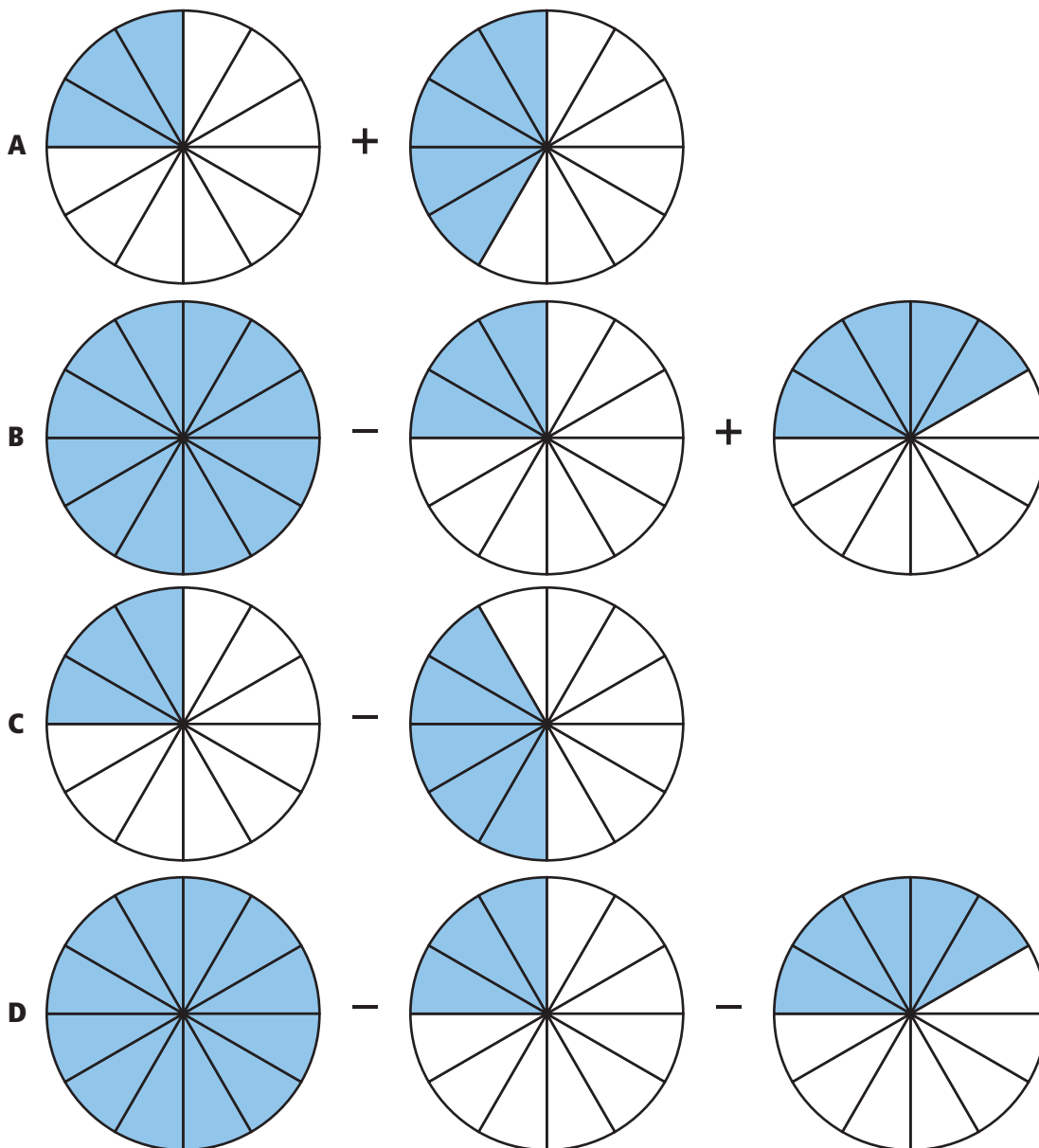


4

Noah, Daniel, and Ava collected a total of 12 pounds of aluminum cans. Noah collected 3 pounds, Daniel collected 5 pounds, and Ava collected a certain number of pounds of aluminum cans. Noah wrote this number sentence to show how many pounds they collected altogether.

$$\frac{3}{12} + \frac{5}{12} + ? = \frac{12}{12}$$

Which model could be used to find how many pounds Ava collected?





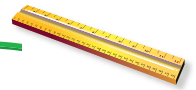
5

José followed the two rules below to make a pattern:

- Begin with the number 1.
- Add 6 each time.

What is the sixth number in José's pattern?

- A** 26
- B** 30
- C** 31
- D** 36



6

On your answer document, draw a closed figure with 5 line segments. Your figure must contain 2 right angles. Label the right angles with the correct angle marks.

## RUBRIC

<b>Score Point 2</b>	<ul style="list-style-type: none"> <li>You complete all components of the question and communicate ideas clearly.</li> <li>You demonstrate an understanding of the concepts and/or processes.</li> <li>You provide a correct answer using an accurate explanation as support.</li> </ul>
<b>Score Point 1</b>	<ul style="list-style-type: none"> <li>You provide a partially correct answer to the question and/or address only a portion of the question.</li> <li>You demonstrate a partial understanding of the concepts and/or processes.</li> </ul>
<b>Score Point 0</b>	<ul style="list-style-type: none"> <li>Your answer is totally incorrect or irrelevant.</li> </ul>
<b>Blank</b>	<ul style="list-style-type: none"> <li>You did not give any answer at all.</li> </ul>
<b>Note:</b> No part can be incomplete or incorrect and receive full credit.	

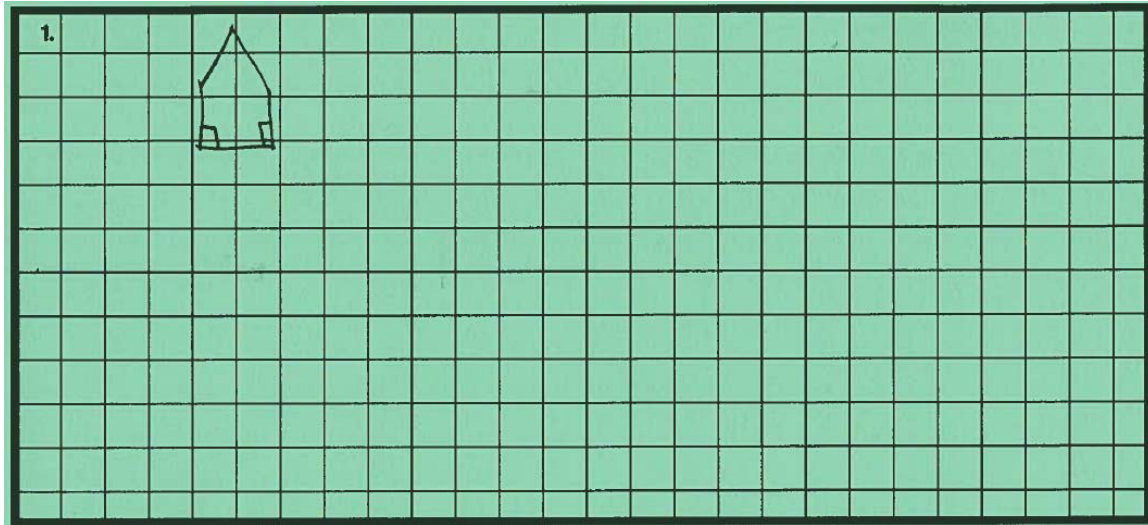
**Correct Answer:**

Correct drawing should be a pentagon with two right angles.



## Annotated Student Response

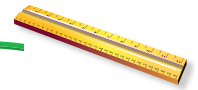
### SAMPLE 2-POINT RESPONSE



#### ANNOTATION – 2-POINT RESPONSE

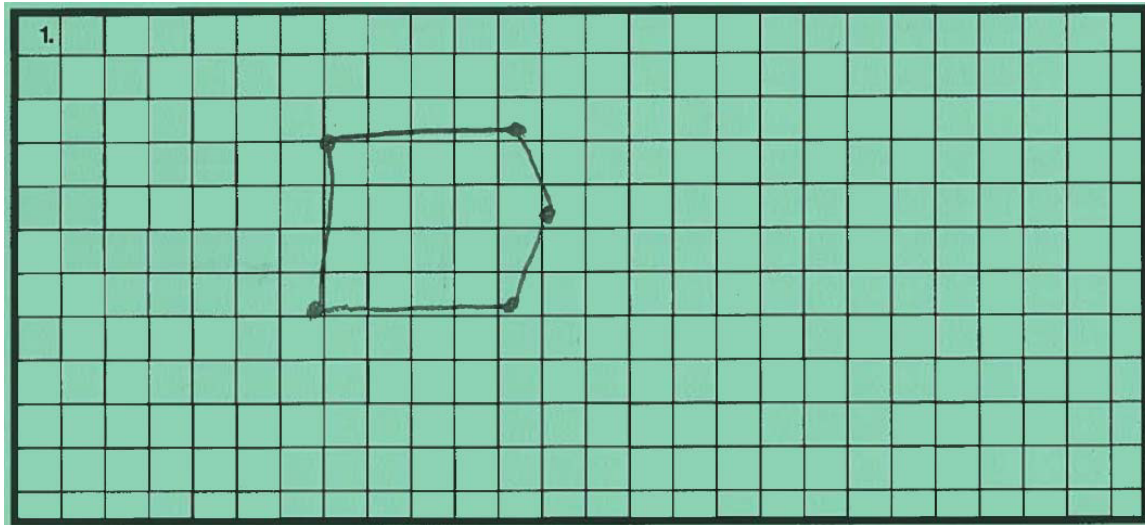
Student provides a correct drawing of a closed 5-sided figure with two right angles labeled correctly.

**Overall**, the student earns 2 points.



## Annotated Student Response

### SAMPLE 1-POINT RESPONSE



#### ANNOTATION – 1-POINT RESPONSE

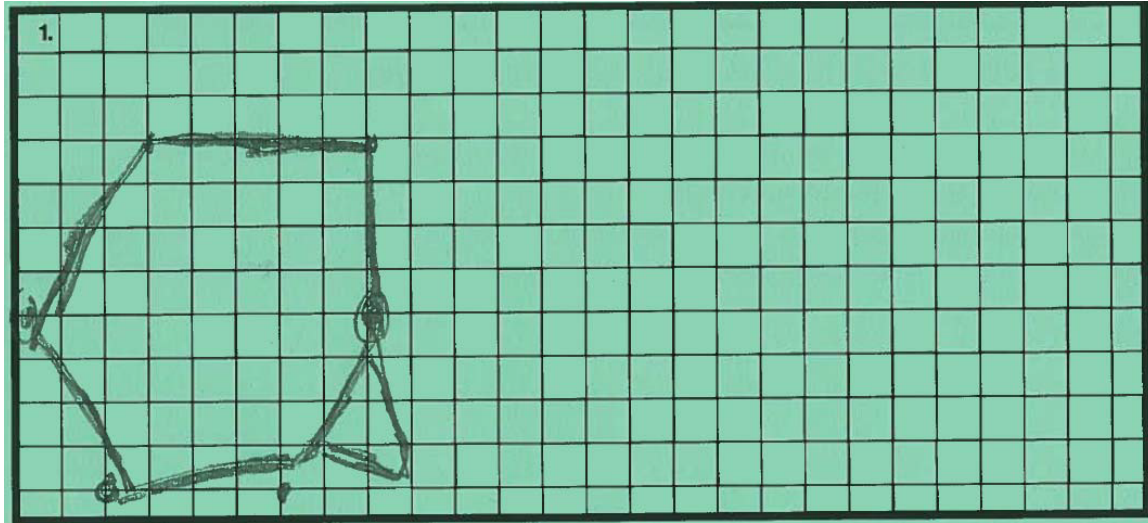
Student provides a correct drawing with no right angles labeled.

**Overall**, the student earns 1 point.



## Annotated Student Response

### SAMPLE 0-POINT RESPONSE



#### ANNOTATION – 0-POINT RESPONSE

Student provides an incorrect drawing with no right angles labeled correctly.

**Overall**, the student earns 0 points.



7

A bird called the arctic tern flies about 18,600 miles each year.

What is this distance rounded to the nearest ten thousand? Show your work or explain how you found your answer.

## RUBRIC

<b>Score Point 2</b>	<ul style="list-style-type: none"> <li>You complete all components of the question and communicate ideas clearly.</li> <li>You demonstrate an understanding of the concepts and/or processes.</li> <li>You provide a correct answer using an accurate explanation as support.</li> </ul>
<b>Score Point 1</b>	<ul style="list-style-type: none"> <li>You provide a partially correct answer to the question and/or address only a portion of the question.</li> <li>You demonstrate a partial understanding of the concepts and/or processes.</li> </ul>
<b>Score Point 0</b>	<ul style="list-style-type: none"> <li>Your answer is totally incorrect or irrelevant.</li> </ul>
<b>Blank</b>	<ul style="list-style-type: none"> <li>You did not give any answer at all.</li> </ul>
<b>Note:</b> No part can be incomplete or incorrect and receive full credit.	

**Correct Answer:**

20,000 miles

I looked at the number 18,600 and since I was rounding to the nearest ten-thousand I looked at the digit to the right of the 1. It is an 8 which is higher than 5 so 18 rounds up to 20 as the nearest ten-thousand.



## Annotated Student Response

### SAMPLE 2-POINT RESPONSE

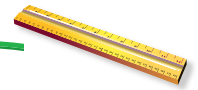
2. 20,000 miles each year. I know this because I know that if you have 4 or below it would round down if you have 5 or above it will round up so 18,600 is closest to 19,000 so it will round up to 20,000

### ANNOTATION – 2-POINT RESPONSE

Student provides a correct answer with an accurate explanation of the rounding process.

**Overall**, the student earns 2 points.





## Annotated Student Response

### SAMPLE 1-POINT RESPONSE

2.

$\overset{9}{18,000}$   
 $19,000$  miles

### ANNOTATION – 1-POINT RESPONSE

Student provides a correct answer with an explanation that demonstrates a partial understanding of the rounding process.

**Overall**, the student earns 1 point.



## Annotated Student Response

### SAMPLE 0-POINT RESPONSE

2. The distance rounded to the nearest  
ten thousand is ten thousand. I no because  
in this number 18,600 one is in the  
ten thousands place.

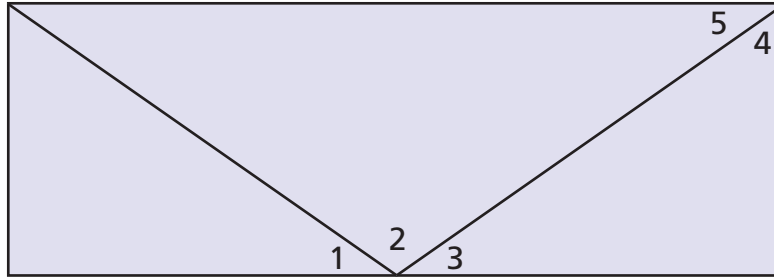
### ANNOTATION – 0-POINT RESPONSE

Student provides an incorrect answer with an incorrect explanation for rounding to the nearest ten thousand.

**Overall**, the student earns 0 points.



Bryce drew a rectangle and labeled five of the angles, as shown below.

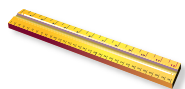


He knew these facts about the angles:

- The sum of the measurements of angles 1, 2, and 3 equals  $180^\circ$ .
- The measurements of angles 1 and 3 are the same.
- The measurement of angle 2 equals  $110^\circ$ .
- The sum of the measurements of angles 4 and 5 equals  $90^\circ$ .
- The measurements of angles 3 and 5 are the same.

**Part A** Based on these facts, what is the sum of the measurements of angle 1 and angle 2? Show your work or explain your answer.

**Part B** What is the measurement of angle 4? Show your work or explain your answer.

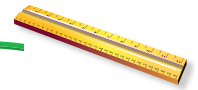


RUBRIC

<b>Score Point 4</b>	Student scores 4 points.
<b>Score Point 3</b>	Student scores 3 – 3.5 points.
<b>Score Point 2</b>	Student scores 2 – 2.5 points.
<b>Score Point 1</b>	Student scores 0.5 – 1.5 points.  OR  Student demonstrates minimal understanding of solving addition and subtraction problems to find unknown angles on a diagram.
<b>Score Point 0</b>	Student's response is totally incorrect or irrelevant.
<b>Blank</b>	No student response.
<b>Note:</b> No part can be incomplete or incorrect and receive full credit.	

**Score Points**

<b>Part A:</b>	score 2 points	correct answer with correct and complete work or explanation
	OR	
	score 1.5 points	correct answer with incomplete work or explanation
	OR	
	score 1 point	correct answer with no work or no explanation
		OR
		incorrect answer due to a calculation error (work must be shown)
	OR	
	score 0.5 point	some correct procedure
		OR
		vague explanation only
<b>Part B:</b>	score 2 points	correct answer with correct and complete work or explanation
	OR	
	score 1.5 points	correct answer with incomplete work or explanation
	OR	
	score 1 point	correct answer with no work or no explanation
		OR
		incorrect answer due to a calculation error (work must be shown)
	OR	
	score 0.5 point	some correct procedure



OR  
vague explanation only

**Correct Answer:**

**Part A:**  $145^\circ$

The measurements for angles 1 and 3 are the same, and angle 2 measures  $110^\circ$ .

$$180^\circ - 110^\circ = 70^\circ$$

$$70^\circ \div 2 = 35^\circ$$

$$110^\circ + 35^\circ = 145^\circ$$

**Part B:** The measurement for angle 4 is  $55^\circ$ .

I know that angle 3 measures  $35^\circ$  and the measurements of angles 3 and 5 are the same, so angle 5 measures  $35^\circ$ . Also, angle 4 and angle 5 add up to  $90^\circ$ .

$$90^\circ - 35^\circ = 55^\circ$$



## Annotated Student Response

### SAMPLE 4-POINT RESPONSE

NOTES

3. A. The sum of angle 1 and 2 equals 145 because:

$$\begin{array}{r} 80 \\ -110 \\ \hline \end{array}$$
$$\begin{array}{r} 70 \\ \div 2 \\ \hline 35 \end{array}$$

but  $35 = 1 + 3$

$$\begin{array}{r} 35 \\ +110 \\ \hline 145 \end{array}$$

The measure of 4 is 55 because:

3 is the same as 3 = 35

$$\begin{array}{r} 80 \\ -25 \\ \hline 55 \end{array}$$
$$\begin{array}{r} 1 \\ +55 \\ +35 \\ \hline 90 \end{array}$$

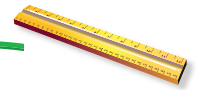
55

A

2.0

B

2.0

**ANNOTATION — 4-POINT RESPONSE**

A Student provides a correct answer with correct and complete work. (2 points)

B Student provides a correct answer with correct and complete work. (2 points)

**Overall**, the student earns 4 points.





## Annotated Student Response

## SAMPLE 3-POINT RESPONSE

## NOTES

3.

A. 
$$\begin{array}{r} 180^\circ \\ -110^\circ \\ \hline 70^\circ \end{array}$$
 
$$\begin{array}{l} 1, 3 = 35^\circ \\ 2 = 110^\circ \\ 1, 2, 3 = 180^\circ \end{array}$$
 
$$\begin{array}{r} 110 \\ + 35 \\ \hline 145 \end{array}$$

B. 
$$\begin{array}{r} 90^\circ \\ -35^\circ \\ \hline 55^\circ \end{array}$$
 my answer is  $65^\circ$  because on the prompt it says 3 and 5 are the same so I looked back up at A. and  $1, 3 = 35^\circ$  so I subtracted  $90^\circ$  and  $35^\circ$  and my answer was  $65^\circ$

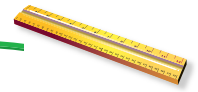
A

2.0

B

1.0



**ANNOTATION — 3-POINT RESPONSE**

- A Student provides a correct answer with complete explanation. (2 points)
- B Student provides an incorrect answer due to a calculation error with work shown. (1 point)

**Overall**, the student earns 3 points.

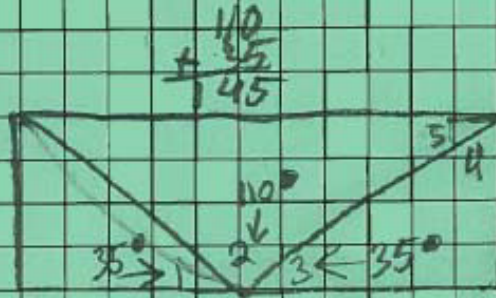


## Annotated Student Response

## SAMPLE 2-POINT RESPONSE

## NOTES

A. How I got the answer 35 is this  $\frac{40}{20}$  and then I divided  $2 \frac{70}{35}$  and that's how I got the answer 35.



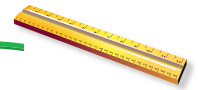
B. The is between 135 and 140 but I think the and is 135 because I added 145 so that's how I got the answer 140.  
135. 135

A

2.0

B

0.0

**ANNOTATION – 2-POINT RESPONSE**

- A Student provides a correct answer with complete work. (2 points)
- B Student provides an incorrect answer with incorrect work. (0 points)

**Overall**, the student earns 2 points.



## Annotated Student Response

## SAMPLE 1-POINT RESPONSE

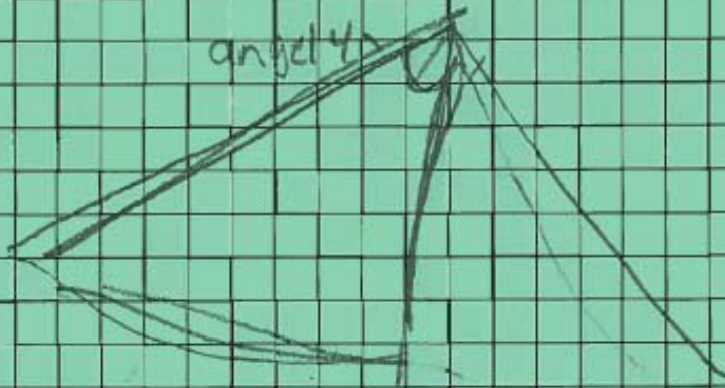
## NOTES

3. A. The sum of the angles are  $145^\circ$ . I got my answer because if you look at fact number 3 it says 2 equals  $110^\circ$ . So I added it with angle number 1. So I got  $145^\circ$ .

A

1.5

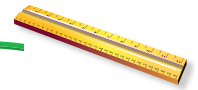
B. Angel number 4 is  $90^\circ$ . I know that because it's half of number 8 angel. Angel 2 equals  $110^\circ$ . It's a part of angel 2



$$\begin{array}{r} 900 \\ + 900 \\ \hline 1800 \end{array} \quad \begin{array}{r} 1100 \\ - 900 \\ \hline 0200 \end{array}$$
  
$$\begin{array}{r} 900 \\ + 200 \\ \hline 1100 \end{array}$$

B

0.0

**ANNOTATION –1-POINT RESPONSE**

- A Student provides a correct answer with incomplete work. (1.5 points)
- B Student provides an incorrect answer with incorrect work. (0 points)

**Overall**, the student earns 1.5 points.





## Annotated Student Response

SAMPLE 0-POINT RESPONSE

NOTES

3.

(A) there Both have  $180^\circ$  there Both equal to  $180^\circ$ .

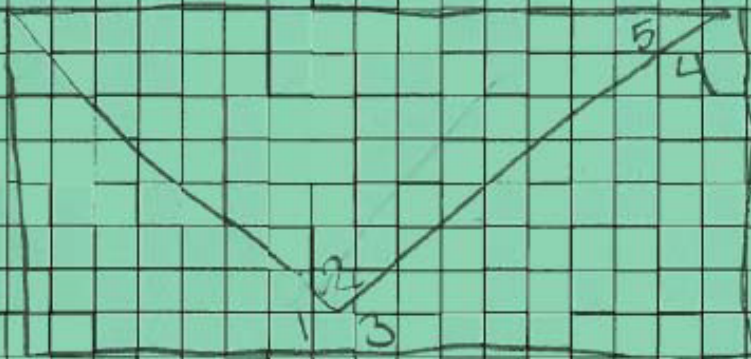
A

0.0

(B) The measure of four is  $90^\circ$  and It the same as five Because they are equal to  $90^\circ$ .

B

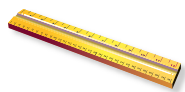
0.0



**ANNOTATION –0-POINT RESPONSE**

- A Student provides an incorrect answer with an irrelevant explanation. (0 points)
- B Student provides an incorrect answer with an irrelevant explanation. (0 points)

**Overall**, the student earns 0 points.

**Item Information**

Question Number	Key	DOK*	KCAS Primary Standard**
1	A	1	4.NBT.2
2	C	2	4.OA.3
3	D	2	4.MD.3
4	D	2	4.NF.3d
5	C	1	4.OA.5
6	NA	2	4.G.1
7	NA	2	4.NBT.3
8	NA	2	4.MD.7

\*DOK is the abbreviation for Depth of Knowledge. Please note that DOK is associated to the complexity level of an assessment item and is not aligned to the standard. Further information regarding DOK can be accessed on the Kentucky Department of Education website: <http://www.education.ky.gov/kde/instructional+resources/curriculum+documents+and+resources/core+content+for+assessment/core+content+for+assessment+4.1/content+specific+core+content+for+assessment+dok+support+materials.htm>.

\*\*Further information regarding Common Core Standards can be accessed on the Common Core website: <http://www.corestandards.org>.